Geometry Study Guide: Semester 1 Final Exam

The material on the exam ranges from Chapters 1 through 5 and Chapter 7 in your textbook. The following are a list of things you should study so that you are prepared for the exam.

Chapter 1: Intro to Geometry

Important Vocabulary: Midpoint, Perpendicular Lines, Segment Addition Postulate, Angle Addition Postulate, Vertical Angles, Right Angle, Supplementary Angles, Complementary Angles, skew lines, collinear, noncollinear, coplanar, noncoplanar, undefined terms of geometry

- Be able to apply the vocabulary words to set up a geometric equation so that you can solve for x.
- Be able to name points, lines, and planes
- Know how to look at a figure to identify things that are congruent or supplementary
- Know the **distance formula** and **midpoint formula**

Chapter 2: Proofs!

Important Vocabulary: Law of Detachment, Law of Syllogism, conditional, converse (***switch the hypothesis and the conclusion***), inverse (***negate the hypothesis and the conclusion***), contrapositive (***switch and negate the hypothesis and the conclusion***), theorem, axiom

- Be able to set up a proof of an if-then statement. (The hypothesis is the given information and the conclusion is what you are trying to prove.)
- Know how to use logic and your geometry vocabulary words to work your way through a proof.
- Know symbolic notation : if p then q $\mathbf{p \rightarrow q}$ not p $\mathbf{\sim p}$

Chapter 3: Parallel Lines and Transversals

Important Vocabulary: Parallel Lines, transversal, corresponding angles, alternate interior angles, alternate exterior angles, consecutive interior angles, slope formula, slopes of parallel lines, slopes of perpendicular lines

- Be able to identify which angles are congruent and which are supplementary.
- Be able to use these relationships in a proof.
- Know the relationship between the slops of parallel lines and perpendicular lines.

Chapter 4: Congruent Triangles

Important Vocabulary: Triangle, Angle Sum Theorem, Exterior Angle Theorem, Isosceles Triangle Theorem, Isosceles Triangle Definition, equilateral triangle, equiangular triangle, scalene triangle, right triangle, hypotenuse, exterior angle of a triangle, base angles, **ASA, AAS, SSS, SAS, HL, CPCTC**, definition of congruent polygons, distance formula

- Be able to set up equations with angles in triangles and solve for x.
- Be able to prove two triangles are congruent using ASA, AAS, SSS, SAS, and HL
- Know that CPCTC is always after you prove that two triangles are congruent.
- Know the Angle Sum Theorem and Exterior Angle Theorem and how to set up an equation.
- Given three points be able to use the distance formula to classify the triangle as isosceles, equilateral, or scalene.

Chapter 5: More on Triangles

Triangle Inequality Theorem

- Know if three lengths will form a triangle using the Triangle Inequality Theorem.
  For example: 2, 3, and 6 will not form a triangle because 2+3 is less than 6
- Be able to use the triangle inequality theorem to find the length of a third side of a triangle.
  For example: If two sides of the triangle are 4 and 7 inches, how long can the 3rd side be?
  4+7=11 and 7-4=3 So the answer is between 3 and 11

Chapter 7
Quadrilaterals

- Know how to write ratios and solve proportions
- Know how to use proportions to identify and solve similar polygons.
- Be able to identify similar triangles using AA,SSS, and SAS
- Be able to use proportional parts within triangles and with parallel lines
- Be able to recognize and use proportional relationships of corresponding **angle bisectors**, **altitudes**, and **medians** in similar triangles.

Construction

You must know how to construct the following:

- Copy a segment — Page 17
- Bisector of a segment — Page 30
- Bisector of an angle — Page 40
- Copy an angle — Page 39
- Perpendiculars — Pages 55 and 220